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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,301	02/08/2002	Eiji Hamamoto	020588	1113

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/071,301	HAMAMOTO ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Prosecution Reopened

1. Prosecution has been reopened after the decision by the Board of Patent Appeals and Interferences, dated 03/30/06.

Withdrawn Rejections

2. The 35 U.S.C. 103(a) rejections of claims 1-24 over Buzzell as the primary reference have been withdrawn in accordance with the decision by the Board of Patent Appeals and Interferences, dated 03/30/06.

New Rejections

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6, 9-14, 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuler (US 4,166,871) in view of Buzzell (US 3,531,351).

Regarding claims 1-3, Schuler teaches a polarizing plate comprising a polyvinyl alcohol-based polarizing film (film polarizer, column 1, lines 32-36) containing a dichroic substance (dichroic stain containing iodine, column 1, lines 38-41) and a transparent protective film (column 1, lines 32-37) bonded to at least one surface of the polyvinyl alcohol-based polarizing film (stretched film sheet of polyvinyl alcohol is then laminated to a sheet of cellulose acetate butyrate, column 4, lines 16-20) through an adhesive layer (by means of a suitable adhesive, column 4, lines 22-24), wherein the adhesive

layer comprises (i) a crosslinking agent capable of crosslinking a polyvinyl alcohol-based polymer (an adhesive comprising polyvinyl alcohol, a crosslinking agent and water, column 4, lines 25-27). Schuler teaches the inclusion of water in the adhesive (column 4, lines 23-27), but fails to teach that the crosslinking agent is water-soluble or the presence of (ii) a catalyst.

However, Buzzell teaches that polyvinyl alcohol-based polymer is crosslinked by boric acid as a crosslinking agent (capable of reacting with the alcoholic hydroxyls of the polyvinyl alcohol, column 5, lines 40-50), which is water-soluble as defined by Applicant's specification (original claim 3); aided by a catalyst (column 5, lines 71-76).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a water-soluble crosslinking agent aided by a catalyst, in the polyvinyl alcohol-based polymer adhesive of Schuler, in order to obtain the desired crosslinking provided by the properties of the water-soluble crosslinking agent aided by the desired catalyst, as taught by Buzzell.

Regarding claim 4, Schuler teaches that the transparent protective film comprises an acetate-based resin (cellulose acetate butyrate, column 1, lines 32-34).

Regarding claim 5, Schuler teaches that the transparent protective film is a cellulose acetate butyrate film (column 1, lines 32-34), but fails to teach that it is a triacetylcellulose film having a saponified surface.

However, Buzzell teaches that triacetylcellulose film can be used in lieu of cellulose acetate butyrate film as the transparent protective film (cellulose triacetate transparent dimensionally stable base, column 6, lines 10-15), and that the

triacetylcellulose film has a saponified surface for the purpose of providing ease of adhesion (surface is hydrolyzed to provide the capacity for adhesion, column 4, lines 65-70).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a triacetylcellulose film in lieu of the cellulose acetate butyrate as the transparent protective film of Schuler, and to have provided it with a saponified surface in order to provide ease of adhesion, as taught by Buzell.

Regarding claim 6, Schuler teaches an optical member (polarizing element, column 1, lines 38-39) of a laminate made by providing one additional optical layer which is other than a polarizing layer (a mar-resistant coating, column 3, lines 34-37), and is applied to the transparent protective film side (the cellulose acetate butyrate protective sheet may have on its surface opposed to its surface laminated to the stretched polyvinyl alcohol, column 3, lines 34-37), of a polarizing plate comprising a polyvinyl alcohol-based polarizing film (film polarizer, column 1, lines 32-36) containing a dichroic substance (dichroic stain containing iodine, column 1, lines 38-41) and a transparent protective film (column 1, lines 32-37) bonded to at least one surface of the polyvinyl alcohol-based polarizing film (stretched film sheet of polyvinyl alcohol is then laminated to a sheet of cellulose acetate butyrate, column 4, lines 16-20) through an adhesive layer (by means of a suitable adhesive, column 4, lines 22-24), wherein the adhesive layer comprises (i) a crosslinking agent capable of crosslinking a polyvinyl alcohol-based polymer (an adhesive comprising polyvinyl alcohol, a crosslinking agent

and water, column 4, lines 25-27). Schuler teaches the inclusion of water in the adhesive (column 4, lines 23-27), but fails to teach that the crosslinking agent is water-soluble or aided by (ii) a catalyst.

However, Buzzell teaches that polyvinyl alcohol-based polymer is crosslinked by boric acid as a crosslinking agent (capable of reacting with the alcoholic hydroxyls of the polyvinyl alcohol, column 5, lines 40-50), which is water-soluble as defined by Applicant's specification (original claim 3); aided by a catalyst (column 5, lines 71-76).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a water-soluble crosslinking agent aided by a catalyst, in the polyvinyl alcohol-based polymer adhesive of Schuler, in order to obtain the desired crosslinking provided by the properties of the water-soluble crosslinking agent aided by the desired catalyst, as taught by Buzzell.

Regarding claims 9-10, Schuler teaches that the adhesive layer comprises (i) a crosslinking agent capable of crosslinking a polyvinyl alcohol-based polymer (an adhesive comprising a crosslinking agent and water, column 4, lines 25-27). Schuler fails to teach that the adhesive layer is formed from a solution containing at least 0.1% of the crosslinking agent, or at least 10 wt% of the water-soluble crosslinking agent.

However, Buzzell teaches approximately 1 wt % of the water-soluble crosslinking agent (6 cc of glyoxal crosslinking agent in 900 g water, column 6, lines 50-60) which is within the claimed range of at least 0.1 wt %. Buzzell fails to teach that the adhesive solution contains a least 10 wt % of the water-soluble crosslinking agent. However, an increase in the concentration of polyvinyl alcohol in the water solution for the purpose of

providing a thicker adhesive layer would necessitate an increase in the wt % of the water-soluble crosslinking agent.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have formed the adhesive layer of Schuler from a polyvinyl alcohol solution containing at least 0.1 wt % of the water-soluble crosslinking agent, or at least 10 wt. % of water-soluble crosslinking agent, in order to provide the desired crosslinked adhesive layer, as taught by Buzzell.

Regarding claims 11-12, Schuler fails to teach teaches that the adhesive layer has a thickness of at most 0.5 microns, but at least 0.02 microns.

However, Buzzell teaches that the adhesive layer is extremely thin (a distinct layer is not visible in the laminate, column 4, lines 35-40), demonstrating that it would have been obvious to one of ordinary skill in the art to have minimized the thickness of the adhesive layer for the purpose of minimizing optical interference from the adhesive layer. It would also have been common sense to have allowed a sufficient thickness for the purpose of providing sufficient laminate adhesion strength. Limitations relating to the size is not sufficient to patentably distinguish over the prior art. See MPEP 2144.04[R-1] IV.A.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the adhesive layer of Schuler with a thickness with is extremely thin, within the range with an upper limit of at most 0.5 microns, in order to minimize optical interference from the adhesive layer, as taught by

Buzzell, and a lower limit of at least 0.02 microns, in order to provide sufficient adhesion strength for the optical laminate.

Regarding claims 13-14, Schuler teaches a process of producing a polarizing plate comprising a polyvinyl alcohol-based polarizing film (film polarizer, column 1, lines 32-36) containing a dichroic substance (dichroic stain containing iodine, column 1, lines 38-41) and a transparent protective film (column 1, lines 32-37) bonded to at least one surface of the polyvinyl alcohol-based polarizing film (stretched film sheet of polyvinyl alcohol is then laminated to a sheet of cellulose acetate butyrate, column 4, lines 16-20), comprising: applying an adhesive layer comprising polyvinyl alcohol and a crosslinking agent capable of crosslinking a polyvinyl alcohol-based polymer (an adhesive comprising polyvinyl alcohol, a crosslinking agent and water, column 4, lines 25-27); and bonding the transparent protective film to the polarizing film (cellulose acetate butyrate is laminated to the polarizer by means of the adhesive, column 4, lines 22-27). Schuler teaches the inclusion of water in the adhesive (column 4, lines 23-27), but fails to teach that the crosslinking agent is water-soluble.

However, Buzzell teaches that water-soluble polyvinyl alcohol-based polymer (column 3, lines 3-6) is crosslinked by boric acid as a crosslinking agent (capable of reacting with the alcoholic hydroxyls of the polyvinyl alcohol, column 5, lines 40-50), which is water-soluble as defined by Applicant's specification (original claim 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a water-soluble crosslinking agent as the crosslinking agent in the adhesive containing polyvinyl alcohol and water, of Schuler, in

order to provide a crosslinking agent which is miscible in the water solution of polyvinyl alcohol, as taught by Buzzell.

Regarding claims 16-22, Schuler fails to teach that the polyvinyl alcohol adhesive layer comprises a catalyst, let alone one that is an acid such as hydrochloric acid.

However, Buzzell teaches that polyvinyl alcohol-based polymer is crosslinked aided by a catalyst (column 5, lines 71-76). Buzzell teaches that the catalyst is usually an acid (column 5, lines 71-72) such as hydrochloric acid (column 6, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the polyvinyl alcohol-based adhesive in the process of Schuler, with an acid catalyst such as hydrochloric acid, in order to obtain the desired crosslinking catalysis, as taught by Buzzell.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuler in view of Buzzell as applied to claims 1-6, 9-14, 16-22 above, and further in view of Shulman (US 4,545,648).

Schuler in view of Buzzell teaches the optical member of a laminate made by providing at least one additional optical layer on a polarizing plate comprising a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer, wherein the adhesive layer comprises (i) a water-soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer and (ii) a catalyst, and wherein the additional optical layer is other than a polarizing layer and is applied to at least one of the polarizing film side and the transparent protective film side

of the polarizing plate, as discussed above. Schuler in view of Buzzell fails to teach that the additional optical layer on the polarizing plate, which is other than a polarizing layer, is a reflective layer, let alone a semitransparent reflective layer.

However, Shulman teaches an optical element in a liquid crystal display (column 4, lines 1-15) comprising an additional optical layer which is semitransparent reflective (transflector layer 48) on a polarizing plate (polarizer element 42) comprising a polyvinyl alcohol-based polarizing film 45 (containing an iodine-complex) and a transparent protective film bonded to at least one surface of the polyvinyl acohol-based polarizing film 42 (transparent isotropic cellulose acetate plastic sheets 46 and 47, column 7, lines 20-30). Shulman teaches that polyvinyl alcohol is the preferred adhesive (binder medium, column 4, lines 35-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a semitransparent reflective layer as an additional optical layer on the polarizing plate of Schuler in view of Buzzell, in order to provide the desired transflective properties, as taught by Shulman.

5. Claims 8, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shulman (US 4,545,648) in view of Schuler (US 4,166,871) and Buzzell (US 3,531,351).

Shulman teaches a liquid crystal display (column 5, lines 14-15) comprising a liquid crystal cell (sandwiched between the two plates is a layer of liquid crystal, column 5, lines 15-30) and a polarizing plate arranged on at least one surface of the liquid crystal cell (set on either side of the sandwich arrangement are front and rear polarizers, column 5, lines 29-32), wherein the polarizing plate (polarizer element 42) comprises a

polyvinyl alcohol-based polarizing film 45 containing a dichroic substance (iodine-complex from staining with polyiodide dye, column 7, lines 23-28) and a transparent protective film bonded to at least one surface of the polyvinyl acohol-based polarizing film 42 (transparent isotropic cellulose acetate plastic sheets 46 and 47, column 7, lines 20-30). Shulman teaches that polyvinyl alcohol is the preferred adhesive (binder medium, column 4, lines 35-40). Shulman fails to teach that the transparent protective film is bonded to the at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer with comprises (i) a water soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer and (ii) a catalyst.

However, Schuler teaches a polarizing plate comprising a polyvinyl alcohol-based polarizing film (film polarizer, column 1, lines 32-36) containing a dichroic substance (dichroic stain containing iodine, column 1, lines 38-41) and a transparent protective film (column 1, lines 32-37) bonded to at least one surface of the polyvinyl alcohol-based polarizing film (stretched film sheet of polyvinyl alcohol is then laminated to a sheet of cellulose acetate butyrate, column 4, lines 16-20) through an adhesive layer (by means of a suitable adhesive, column 4, lines 22-24), wherein the adhesive layer comprises polyvinyl alcohol and (i) a crosslinking agent capable of crosslinking a polyvinyl alcohol-based polymer (an adhesive comprising polyvinyl alcohol, a crosslinking agent and water, column 4, lines 25-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have bonded the transparent protective film to the at least one surface of the polyvinyl alcohol-based polarizing film in the polarizing plate of

Shulman, through an adhesive layer which comprises (i) a crosslinking agent capable of crosslinking a vinyl alcohol-based polymer, in order to obtain the desired physical properties provided by the crosslinking agent, as taught by Schuler.

In addition, Schuler teaches the inclusion of water in the adhesive (column 4, lines 23-27), but fails to teach that the crosslinking agent is water-soluble or is aided by (ii) a catalyst, let alone a catalyst which an acid such as hydrochloric acid.

However, Buzzell teaches that polyvinyl alcohol-based polymer is crosslinked by boric acid as a crosslinking agent (capable of reacting with the alcoholic hydroxyls of the polyvinyl alcohol, column 5, lines 40-50), which is water-soluble as defined by Applicant's specification (original claim 3); aided by a catalyst (column 5, lines 71-76). Buzzell teaches that the catalyst is usually an acid (column 5, lines 71-72) such as hydrochloric acid (column 6, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a water-soluble crosslinking agent aided by an acid catalyst such as hydrochloric acid, for the polyvinyl alcohol-based polymer adhesive of Shulman in view of Schuler, in order to obtain the desired crosslinking provided by the combination of water-soluble crosslinking agent and acid catalyst, as taught by Buzzell.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuler in view of Buzzell as applied to claims 1-6, 9-14, 16-22 above, and further in view of Delangre (US 3,015,989).

Schuler in view of Buzzell teaches the process of producing a polarizer plate comprising a polyvinyl alcohol-based polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film, comprising: applying an adhesive layer comprising polyvinyl alcohol, water and a water soluble crosslinking agent capable of crosslinking a vinyl alcohol-based polymer to the polarizing film containing a dichroic substance; and bonding the transparent protective film to the polarizing film, as discussed above. Schuler in view of Buzzell fails to teach that the adhesive layer is applied to the polarizing film comprising the dichroic substance after it has been crosslinked and dried.

However, Buzzell teaches that a cross-linking agent is added to improve the properties of the polymer for the purpose of maintaining the dimensional stability of the polymer against ambient humidity (column 5, lines 24-29), wherein the polymer is polyvinyl alcohol (column 5, lines 30-36, column 7, lines 39-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have applied the adhesive layer containing water to the polarizing film comprising the dichroic substance of Schuler in view of Buzzell, after said polarizing film has been crosslinked and dried, in order to maintain the dimensional stability of the polyvinyl alcohol in the polarizing film, as taught by Buzzell.

Response to Arguments

7. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection. Although Shulman, Buzzell and Delangre were used in the prior rejections, Schuler is the new reference which teaches the polarizing plate comprising a polarizing film containing a dichroic substance and a transparent protective film bonded to at least one surface of the polyvinyl alcohol-based polarizing film through an adhesive layer, wherein the adhesive layer comprising (i) a water-soluble crosslinking agent capable of crosslinking a vinyl-alcohol-based polymer.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon.
Sow-Fun Hon
04/28/06

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1772
5/1/06